THIS MESSAGE DATED

is from Bernard SALVAT, Chairman STAC-GCRMN

to Global Coral Reef Monitoring Network : M.G. and STAC members

THIS IS FOR INFORMATION - NO ANSWER REQUIRED

Dear STAC member,

The last comprehensive message and mail letter which you received with respect to the GCRMN activities was on 28 october when Clive WILKINSON sent you the followings :

- minutes of our meeting in Panama
- draft of the GCRMN Strategic plan
- a brochure on the GCRMN
- July and September progress reports to the IOC.

Since then you received from time to time informations or request for comments on some topics through e mail.

To day we send you a " package " in order for you to have a clear idea of the work which has been accomplished and the present status. This package contains a selection of papers, some of which you received before. Summary below.

The next " package " will include :

- the GCRMN Strategic plan - presently at IOC, UNEP and IUCN for signature,
- information related to the ICRI Coordination and Planning Committe (CPC) which met in Canberra 8 and 9 april and which was attended by Clive WILKINSON. Note that the Coordinator and the Chairman of STAC of the GCRMN are members of this CPC of ICRI
- other information.

SUMMARY

1 - MANAGEMENT GROUP COMPOSITION (MG / GCRMN)

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3 - FIRST YEAR PROGRESS REPORT OF THE IOC-UNEP-IUCN GCRMN

IOC-UNEP-IUCN GLOBAL CORAL REEF MONITORING NETWORK

FIRST YEAR PROGRESS REPORT

APRIL 1997

This is the first progress report to the Coordination Planning Committee of the International Coral Reef Initiative on activities of the Global Coral Reef Monitoring Network. It covers the period from the ICRI EPC meeting in Washington DC (February 1996) to this ICRI CPC Meeting in Canberra (8/9 April 1997).

EXECUTIVE SUMMARY

The forward momentum for ICRI and coral reef monitoring was boosted by President Clinton when he visited the Great Barrier Reef last November. This emphasis needs to be captured to advance the GCRMN as a tool for enhanced coral reef management and conservation.

Considerable progress has been made in establishing GCRMN Coordination and GCRMN Nodes in some regions. All regions have held (or will hold) ICRI Regional Workshops resulting in calls to establish regional monitoring networks in approximately 70 countries. Existing monitoring projects in some regions are combining to form networks; in other areas, networks are being built from appropriate agencies and institutes, with the necessary capacity building being identified.

Documents detailing how the GCRMN should proceed have been completed:

the GCRMN Strategic Plan to establish monitoring networks in all coral reef regions has been extensively edited by IOC, UNEP and UCN and will be printed by IOC for widespread distribution;

the 2nd edition of the methods manual is being reprinted and receiving database structures have been prepared;

brochures advertising the GCRMN were distributed at the Panama Symposium (JUN-96) and the IUCN General Assembly (OCT-96). This material is in the NOAA area on the World Wide Web.

Monitoring and training has started in some areas:

the GCRMN Pilot Monitoring Project has commenced with approximately 50 institutes participating in all 6 regions;

training has commenced in the Western Indian Ocean, and is continuing in the East Asian Seas.

A major funding boost was provided by the Overseas Development Administration, UK to initiate the GCRMN in South Asia. The ODA, in collaboration with IOC and IUCN will locate an interim coordinator in Sri Lanka for 18 months to assist India, Maldives and Sri Lanka.

GCRMN Node arrangements have been finalised for 3 regions (South Asia, Western Indian Ocean - Eastern African States and East Asian Seas) and the other three should be decided in workshops in the next 4 months. Funding is required to initiate these nodes or coordinate existing monitoring, as well as develop funding proposals for the future.

Currently, GCRMN coordination is based on funding from the USA and Australia. More stable funding is required for future operations.

The Cooperative arrangement for the GCRMN between 3 sponsors (IOC, UNEP, IUCN) and the 2 host agencies (AIMS and ICLARM) is improving as better lines of communication and understanding are developed. The agencies are providing considerable advice and influence to assist implementation in the 6 regions. Support of ICRI partners is required for full implementation.

REGIONAL ACTIVITY SUMMARY

Middle East - Gulfs Region

A preliminary ICRI Technical Workshop was held in Aqaba, Jordan (15/17-DEC-96) with representatives from Egypt, Israel, and Jordan. The GCRMN was represented by Dr Emre Turak. An ICRI Regional Workshop for the Red Sea and Gulf of Aden is scheduled for 4 to 8 May, 1997 and will include other countries from the region. This Workshop is being coordinated by the Government of Jordan and NOAA (Dr Ben Meiermet). The GCRMN Coordinator has been invited to attend.

Western Indian Ocean - Eastern African States Region.

The ICRI Regional Workshop, Seychelles (MAR/APR-96) was attended by 8 Indian Ocean countries and decided that there would be 2 GCRMN Nodes: Mauritius, hosted by Indian Ocean Commission, for Western Indian Ocean island states; and Kenya, hosted by Kenya Marine Fisheries and Research Institute for Eastern African States. A GCRMN

coordinator, Dr Alain Jeudy de Grissac, has been appointed under the European Union Regional Environmental Programme to Mauritius and has commenced training in the region. Methodology and approaches for the GCRMN were discussed at a coral reef workshop in Mombasa, Kenya and attended by the recently appointed interim GCRMN coordinator for South Asia (25/29-FEB-97; report pending). A high-level workshop to harmonise methods and training strategies is being planned for Kenya in July or August.

The Coordinator had discussions in November with representatives of the French and Swedish governments and IOC/UNESCO about support and funding for both Nodes. Sweden has appointed an assistant to UNEP, to assist activities in this Region.

South Asia Region

SACEP (South Asia Cooperative Environment Programme) in Colombo was designated as the ICRI Node for South Asia at the ICRI Regional Workshop, Maldives attended by all 5 regional countries and observers from another 5 (NOV-95). The Overseas Development Administration, UK has appointed an Associate Professional Officer (Jason Rubens) to initiate the GCRMN in Sri Lanka. The ODA is negotiating a contract with the IOC and IUCN, to act as the on-site hosts. The ODA will also provide adequate operational funds for initial training and monitoring.

Jason Rubens visited the offices of the 3 Co-sponsors in February/March and will transfer to Sri Lanka in April to initiate the GCRMN in India, Maldives and Sri Lanka.

East Asian Seas Region

The GCRMN region was endorsed as the mechanism to provide monitoring data at the ICRI Regional Workshop in Bali, attended by 11 Asian countries and 3 observing nations (MAR-96). A 2nd ICRI Regional Workshop, hosted by the Government of Japan in Okinawa (16/20-FEB-97), resolved that most nations would become GCRMN Nodes and maintain their own databases. An urgent need was identified to provide training to Burma/Myanmar, Cambodia and Viet Nam to bring them up to the monitoring capacity of other ASEAN partners. Neighbouring ASEAN countries offered to coordinate this training. There was a similar need to provide training to North Asia with the establishment of a coral reef centre in Okinawa by Japan as probable location for this training and coordination.

The East Asian Seas/Regional Coordination Unit of the UNEP offices in Bangkok was reaffirmed as the coordination node for ICRI activities, including the GCRMN. The ENRIN database, managed by UNEP, was regarded as the suitable repository for regional summary data to prepare GCRMN annual summaries through cooperation with partner countries. Activities in the region should be coordinated through COBSEA, however, it was recognised that not all countries in the EAS region were members of COBSEA. Non-member countries were urged to consider COBSEA membership.

Pacific Region.

The ICRI Regional Workshop, Fiji (NOV-95), attended by 21 Pacific countries, agreed on the need for the GCRMN. The ICRI Regional Node, designated as SPREP in Apia, Western Samoa, is inviting country participation and suggestions for GCRMN functional Nodes. An offer has been made by the President of French Polynesia for a Polynesian Node. Funding of this Node was discussed with French Government departments in Tahiti and Paris in November. Other suggestions are pending. The Japanese and USA governments are cooperating with the Government of Palau to construct the Palau Coral Reef Conservation and Research Center. This centre is considered as a possible Node location for the North West Pacific.

The Pacific Science Inter-Congress and IYOR meeting in Fiji (JUL-97), will be used to confirm major GCRMN decisions on Node sites and funding. A request has been made to hold a specific GCRMN meeting during the Fiji Congress.

Tropical Americas - Caribbean Region

The ICRI Regional Meeting in Jamaica, attended by 32 countries (JUL-95), was the first in the ICRI process, and

endorsed the central role of CARICOMP in regional monitoring. The GCRMN was to be discussed at a CARICOMP meeting in Cancun, Mexico (NOV-96). Representatives of Governments of France and UK expressed strong interest to the GCRMN Coordinator for establishing GCRMN Nodes in Leeward and Windward Islands based around St Lucia, and possibly Montserrat. Strong interest has been shown for the Pilot Monitoring Project by people monitoring reefs in some smaller states and islands.

A meeting of Association of Marine Laboratories of the Caribbean (CIMAR) in Costa Rica (JUL-97) will present an opportunity to discuss implementation of the GCRMN throughout the region.

STRATEGIC PLANS

The strategic and technical documents to establish the GCRMN have been completed and are being published. The GCRMN Strategic Plan lists the major objectives, goals, principles and strategies for establishing the GCRMN as a global network. It has been through 5 iterations with the GCRMN Management Group and GCRMN Scientific and Technical Advisory Committee (STAC) since May 1996. The Plan, with a Preface, signed by the senior executives of IOC, UNEP and IUCN, will be published by the IOC for widespread distribution.

The 2nd edition of the Survey Manual for Tropical Marine Resources is now being published by AIMS. This contains the methods recommended for GCRMN monitoring, as well as methods for mangroves, seagrasses and other systems. This manual is an improvement on the 1st edition with colour photographs of coral reef lifeforms and photographs of mangrove trees. Data protocols have been simplified for easier application.

Database structures have been written at AIMS using Access format. These receiving databases contain tables for manta tow, line intercept transect and visual fish census data. Prompts for users and checking routines are included, and users have a range of basic data analysis and presentation programmes to provide instant graphic output. Database diskettes, with a supporting written manual, are available to regions when training is provided.

Progress reports were distributed in July, September, 1996, January, March 1997 (this report), and monthly progress summaries are distributed to the GCRMN Management Group and STAC. Minutes of the 2 GCRMN STAC meetings (8th International Coral Reef Symposium, Panama, JUN-96) were distributed in October.

Status reviews, prepared by senior scientists and managers for the Symposium on the Global Status of Coral Reefs, were reviewed for publication in the proceedings of the International Coral Reef Symposium in mid-1997.

Two brochures were distributed at the Panama Symposium (JUN-96) and the IUCN General Assembly (OCT-96). The material has also been lodged as a page on the World Wide Web, within the NOAA area.

GCRMN PILOT MONITORING PROJECT

The Pilot Project to assess a series of reefs between March and July was launched via the internet in October, and now has approximately 50 institutes or individuals participating: Middle East - 5; Western Indian Ocean/Eastern Africa - 2; South Asia - 3; East Asian Seas - 13; Pacific - 10; Tropical Americas, Caribbean - 15 = Total 48, with another 15 general inquiries. Database structures are available over the internet.

There is active communication with the following volunteer monitoring projects: Aquanaut, ReefBase, Manila; Reef Check, Hong Kong; Reef Watch and Eye on the Reef, Australia. The GCRMN seeks to coordinate activities and avoid potential overlaps.

Two discussion methodology workshops are planned for the South Asia and Western Indian Ocean and Eastern African Regions for July to September. These aim to coordinate methods and approaches of 'training the trainers' by bringing together people with extensive experience in monitoring to develop training protocols for the whole Indian Ocean. Another workshop is being planned for Mozambique involving Eastern African States to trial the Tanga bio-physical and socio-economic methods.

ACTIVITIES OF COORDINATOR

Three ICRI Regional Workshops (Jamaica, Fiji, Maldives) occurred prior to appointment of the GCRMN Coordinator. Three were attended since then: the 1st and 2nd ICRI East Asian Seas Regional Workshops (Bali and Okinawa) and the Seychelles meeting for the Western Indian Ocean and Eastern African States. The ICRI EPC meeting in Washington DC was attended prior to establishing the contract, and combined with a visit to Florida to discuss coordination with CARICOMP and the implications for the GCRMN of the International Year of the Reef with Drs John Ogden and Robert Ginsburg.

ICLARM has been visited 2 times (MAR-96 and FEB-96) for discussions with the Director, Dr Meryl Williams and other staff, particularly with Dr John McManus to ensure a close working relationship with ReefBase.

Travel was also undertaken to Panama for the 8th International Coral Reef Symposium (JUN-96), where there were 2 meetings of the GCRMN Scientific and Technical Advisory Committee and one of the ICRI EPC. A visit was made to Tahiti to discuss establishing the GCRMN with the French Polynesian Ministers for the Environment and Health and Research, and to Paris for discussions within IOC, including how to integrate activities with GOOS and the IUCN. Meetings were also held with the French Government Ministries of Environment, Cooperation (Foreign Affairs) and Overseas Territories on French involvement in GCRMN activities in the Indian and Pacific Oceans and the Caribbean Sea. Similar discussions were held with ODA officials in London on establishing the South Asian Node and for reef monitoring in the Caribbean.

Electronic mail lists have been created for the Management Group, STAC and participants in the Pilot Project. This is the preferred method of communication for GCRMN activities. The Coordinator published several papers and gave seminars on the GCRMN (Appendix II).

FUNDING

The GCRMN has received major funding from some ICRI partner countries.

The USA State Department provided US$100,000 to the IOC Trust Fund for the Coordinator's position (12 months: 17-MAR-96 to 30-APR-97) and has provided a further $75,000 to continue the position after May.

The ODA of UK has funded an Associate Professional Officer to establish the GCRMN in South Asia, based in Sri Lanka. The APO is being provided with $200,000 (106,000 Pounds) for approximately 18 months operational costs for training, initial monitoring, and project proposal development.

AIMS in Australia has supported the salary of the Coordinator for approximately $30,000 prior to commencement and between contracts. In addition, a further $26,000 has been provided in support, equipment and travel.

Other countries have provided indirect support by funding ICRI Regional Workshops. Japan funded the GCRMN Coordinator's travel to the Okinawa workshop.

FUTURE ACTIVITIES

While good progress has been made in establishing the GCRMN in the South Asian, Western Indian Ocean - Eastern African States and East Asian Seas regions, there has not been similar progress in Middle East - Gulfs, Pacific and Tropical Americas - Caribbean regions. Forthcoming meetings in Jordan (MAY-97), Fiji (JUL-97) and Costa Rica (JUL-97) should ensure progress for these regions.

Funding to initiate the GCRMN has been assured for South Asia, but clear funding lines have not been indicated for the other regions, or Nodes within those regions. Indications of possible funding have been given by the Governments of France, Japan, Sweden, UK and USA, and clear decisions can only be made after definitive proposals have been provided to governments and agencies.

The Coordinator will visit Jordan for the Red Sea and Gulf of Aden ICRI Regional Workshop, scheduled for May, 1997. Consideration is being given to attending the Pacific Science Inter-Congress and IYOR meeting in Fiji (JUL-97), and the meeting of the Association of Marine Laboratories of the Caribbean (CIMAR) in Costa Rica (JUL-97).

A workshop is being planned to develop socioeconomic parameters and produce these in the form of a manual. This is tentatively scheduled for Bolinao, Philippines for late August, hosted by Professor Edgardo Gomez, Marine Science Institute, University of Philippines and ICLARM. These methods would draw on those currently being used in Tanga, Tanzania and at ICLARM.

A critical issue is to ensure long-term funding of the position of GCRMN Coordinator and to establish regional coordinators. Currently there is central funding until 30-APR-97 and approximately 9 months more using money provided by the US State Department. The Government of France has suggested funding the Coordinator for several months.

The current level of funding is, however, insufficient to cover all activities and travel. AIMS has covered some shortfalls, but is unwilling to continue, without clear support from governments. IOC/UNESCO used the comments made by President Clinton to urge funding for the GCRMN. This yielded success with the USA, but other governments have not yet responded.

Clive R. Wilkinson
Coordinator, GCRMN
26th March 1997

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4 - IOC Report to the CPC of ICRI (Coordination and Planning Committee) 8-9 April 1997, Canberra

Albert Tolkatchev (4th april 1997)

REPORT FROM THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION TO THE COORDINATION AND PLANNING COMMITTEE MEETING OF THE INTERNATIONAL CORAL REEF INITIATIVE - APRIL 1997

In 1995 at its 18th Session, the IOC Assembly endorsed the International Coral Reef Initiative (ICRI) Call to Action and Framework for Action, which promoted the development of a Global Coral Reef Monitoring Network (GCRMN). This Network was to emphasise the importance of strategic research and monitoring to address key management issues. The Assembly called on the IOC, to sponsor the GCRMN and through it, report every four years on the ecological condition of coral reefs and related ecosystems. The Assembly decided to support the establishment of a Global Coral Reef Monitoring Network and the appointment of a Co-ordinator. Upon an invitation from the IOC, IUCN and UNEP agreed to co-sponsor the development of the GCRMN. The Co-ordinator position for the GCRMN was established and Dr C. Wilkinson was appointed, thanks to a financial contribution from the Government of the USA to the IOC Trust Fund, as well as the support provided by the Australian Institute of Marine Science (AIMS) and the International Center for Living Aquatic Resources Management (ICLARM) based in the Philippines.

Two international mechanisms have been established to co-ordinate development of the GCRMN:

the IOC-UNEP-IUCN Scientific and Technical Advisory Committee (STAC) chaired by Dr. Bernard Salvat; and the GCRMN Management Group consisting of representatives of IOC, UNEP, IUCN, ICLARM, AIMS, ICRI and the

Chair of STAC.

The first meetings of STAC and the IOC GCRMN Workshop were held in Panama, June 1996 during the 8th International Coral Reef Symposium. IOC provided financial support for participation of 13 reef specialists from developing countries to both the Workshop and the Symposium. The GCRMN Strategic Plan has been prepared by the GCRMN Co-ordinator in close consultation with the Management Group, and following advice from STAC. It will be published by IOC for widespread distribution, with a Preface signed by the Senior Executives of the Co-sponsors, IOC, UNEP and IUCN.

The monitoring strategy of the GCRMN is to integrate into a global cooperative network, the governments, institutes, NGOs and communities that use, depend on, study and monitor coral reefs. This network will function through independent regional nodes that include all the tropical and sub-tropical countries with coral reefs. The initial emphasis is on training a small group of specialists in developing countries, who will act as the trainers to spread expertise to observe and monitor coral reefs and assemble and use the data for improved management of reefs and conservation of their biodiversity.

The Overseas Development Administration (ODA) of the United Kingdom has agreed to provide an expert, along with considerable operational funds to assist in designing and implementing the South Asia regional component of the GCRMN to assist India, the Maldives and Sri Lanka. The administration of this posting will be shared between IOC and IUCN. Dr C. Wilkinson will present a progress report on the first year of operation of the GCRMN for the Co-sponsors to the ICRI CPC and report back to the IOC on the results of the meeting.

We are pleased with the close contact that has been established between GCRMN and ICRI activities, particularly through co-ordination of regional activities and the work of the GCRMN Management Group. IOC invites the ICRI Coordination and Planning Committee to consider any further steps needed to strengthen interactions between the GCRMN and ICRI to support the ICRI goals and objectives and implement more effective activities to manage and conserve coral reefs. Particular emphasis is placed on the need for ICRI partners to provide support to initiate and strengthen implementation of GCRMN activities in the six regions, as identified in the GCRMN Strategic Plan.

The progress in the development of the GCRMN will be reviewed by the XIX th session of the IOC assembly in July 1997. Tha assembly will be invited to identify further steps and actions needed for progressive implementation of the GCRMN in close cooperation with co-sponsoring agencies and cooperating organizations. The views of the ICRI coordination and planning committee will be brought to the attention of the IOC assembly.

5 - SUMMARY OF PROGRESS IN GCRMN REGIONS TO MARCH 1997
Clive Wilkinson (2 April 1997)

Summary of progress in GCRMN regions to March 1997.

SUMMARY: Major activities were:

- East Asian Seas ICRI Meeting 17/20-FEB-97 decided on individual country Nodes and training needs;

- launch of GCRMN Pilot Coral Reef Monitoring Project in FEB with about 50 signed up;

- agreement between ODA and IOC/IUCN for GCRMN post in South Asia is progressing and appointee, Jason Rubens, met with IOC, UNEP, IUCN, attended the Mombasa Workshop and will travel to Sri Lanka in April (probably);

- US State Dept. provided $75 000 to IOC for GCRMN;

- major GCRMN documentation completed for printing.

REGIONS:

Middle East - Gulfs

Currently: First ICRI Technical Workshop, held in Aqaba, Jordan 15/17-DEC-96 with representatives of Egypt, Israel, and Jordan. Saudi Arabian delegates did not arrive. GCRMN represented by Dr Emre Turak. Workshop report is

being prepared by Dr Ben Meiermet from NOAA.

Future: The ICRI Regional Workshop scheduled for May 1997, now postponed to September because of political difficulties.

Western Indian Ocean - Eastern African States

Currently: GCRMN Nodes decided APR-96 at ICRI Workshop, Seychelles attended by 8 Indian Ocean countries. Western Indian Ocean island states - Node is Mauritius hosted by Indian Ocean Commission, funded by the European Union. Discussions held with French Government Departments (Environment, Cooperation, de l'Outre-Mer) in NOV-96 on funding. Alain Jeudy de Grissac visited Comoros, Madagascar, Mauritius, Seychelles and provided monitoring training for about 20 people. His contract has ceased.

East African States - Node in Kenya, hosted by KMFRI (Kenya Marine Fisheries and Research Institute). Discussions held with representative of Swedish aid agencies on funding (NOV-96). SIDA supporting Agneta Nilsson as assistant to Dr Ian Dight UNEP. Western Indian Ocean Coral Reef Workshop - 25/29-FEB-97 discussed GCRMN methods and applications for both Nodes (report pending).

Future: Potential for combined workshops on developing training strategies and techniques for Indian Ocean with South Asian region in JUN/JUL-97.

South Asia Region

Currently: ICRI Regional Workshop, Maldives, NOV-95 attended by 8 Indian Ocean countries. Negotiations continuing between Overseas Development Administration, UK, and IOC and IUCN, on appointing Jason Rubens to GCRMN Node in Sri Lanka. IUCN to act as on-site host, with close collaboration planned with SACEP (South Asia Cooperative Environment Programme) in Colombo. If arrangements successful, ODA will provide adequate operational funds for initial training and monitoring until mid-1998. Barbara Brown visited India and Sri Lanka in March.

Future: In JUN/JUL-97, potential for development of training methods workshop in Sri Lanka.

East Asian Seas Region

Currently: ICRI Workshop Bali, MAR-96 attended by 11 countries. Agreed on GCRMN in region. ICRI Workshop, Okinawa 16/20-FEB-97, attended by 12 Asian states, decided that most countries would have Node status and maintain own databases. Coordination and database for EAS to be organised through COBSEA and UNEP EAS/RCU in Bangkok.

Future: Urgent need for GCRMN methods training identified in Burma/Myanmar, Cambodia and Viet Nam and probably in north Asia using expertise from the region. Location and funding of training to be determined. The Government of Japan has offered to assist through a coral reef scientific centre to be established in Okinawa. Socioeconomic workshop proposed for Philippines late August.

Pacific Region

Currently: ICRI Regional Workshop, Fiji NOV-95 attended by 19 Pacific countries and states. Agreed on GCRMN in region. SPREP inviting country participation and suggestions for Nodes. Offer from President, Fr. Polynesia for Polynesian node; other suggestions pending. Funding of region being discussed with ICRI participant countries: Australia, France, Japan and USA.

Future: Pacific Science Inter-Congress and IYOR meeting in Fiji JUL-97, may confirm major GCRMN decisions. Joint Japan-US station planned for Palau is considered as valuable potential site for GCRMN activities in NW Pacific.

Tropical Americas - Caribbean Region

Currently: ICRI Regional Meeting Jamaica in JUL-95 with 32 countries represented. Meeting of CARICOMP (Cancun, Mexico NOV-96) was to discuss ICRI and GCRMN - no replies to requests for information. Representatives of Governments of France and UK expressed strong interest in GCRMN Node in Leeward and Windward Islands based around St Lucia. Strong interest being shown during Pilot Monitoring Project by people monitoring reefs in some smaller states and islands.

Future: GCRMN implementation may be discussed at meeting of Association of Marine Laboratories of the Caribbean in Costa Rica, JUL-97.

GCRMN Coordination Office

Second contract ends 30-APR-97. US State Department responded to request from IOC and promised US$75 000 to continue GCRMN central office. Government of France may offer a few months salary in 1998. No more funding indicated after April, 1998. Major funding so far from Australia (AIMS), UK (ODA) and USA (State Dept.). Coordinator will visit Fiji, and maybe Costa Rica, in July, and possibly ICLARM for socioeconomic parameter workshop, AUG-97.

GCRMN Pilot Monitoring Project launched to start in February. Institutes or individuals indicating agreement to participate are: Middle East - 5; Western Indian Oc. Eastern Africa - 2; South Asia - 3; East Asian Seas - 13; Pacific - 10; Tropical Americas, Caribbean - 15 = Total 48. This generated considerable interest in the GCRMN with many more inquiries. Communication is active with volunteer projects (Reef Check, Hong Kong; AQUANAUT, Philippines; Reef Watch and Eye on the Reef, Australia) to coordinate activities and avoid potential overlaps.

Editing of Strategic Plan being finalised by UNEP and IUCN ; IOC will publish for wide distribution with Preface to be signed by chief executives of IOC, UNEP and IUCN. Survey Manual being printed.

Annual ICRI Coordination and Planning Committee meeting to be held in Canberra, 8/9-APR-97. GCRMN Coordinator will report progress and seek funding for future activities.

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6 - PILOT MONITORING PROJECT
Clive Wilkinson (12th February 1997)

IOC-UNEP-IUCN GCRMN PILOT MONITORING PROJECT

The following is a summary of what was sent out today to about 50 institutes around the coral reef world - this is a pilot project to test our systems for setting up the GCRMN - please provide comment and advice. Thank you for your offer to participate in this pilot project.

We would like you to monitor several reefs over the next 4 months - if possible in several countries if you are travelling. At each, it would be valuable to do 3 sites on each reef to get a statistical sample. Please advise where you are likely to monitor in the next few months.

These data will be pooled in ReefBase and published for the IYOR as a special study - a map of the world, with analyses of benthic cover and fish populations. This will be the first product from the GCRMN other than documents. The data will also make a valuable contribution to ReefBase and will feature in their future data summaries. When we go beyond the Pilot phase, we hope that you will visit these sites on a regular basis for the GCRMN and feed the data into country and regional databases and then to ReefBase.

AIMS has produced a receiving database for PCs which will assist in defining fields and performing basic analyses. Could you please trial this database and provide critical (and helpful comments) so that we can improve it for global monitoring by people who may have little scientific and computer experience.

The database ARMDES Version 1.2 is available from the AIMS Home Page : http://www.aims.gov.au/monweb/software.html

if you have trouble downloading this, please contact Scott Bainbridge on: s.bainbridge@aims.gov.au

We are designing a format for reporting to ReefBase - this will be sent down the line to you soon. Following are a set of protocols that we will issue to participants in the GCRMN - please give guidance on these as well.

Also attached is a listing of people in your region - the global list will by put up on the WWW.

PROTOCOLS FOR CORAL REEF MONITORING

Basic GCRMN monitoring is envisaged using three methods to obtain a good assessment of reef status and be used to check for changes in future. Socioeconomic parameters are being developed.

All methods use the 'standard methodology' in English, S., Wilkinson, C, and Baker, V. (1997). Survey Manual for Tropical Marine Resources, 2nd Edition. Published by Australian Institute of Marine Science Townsville ISBN 333.952072013 (or the 1st Edition published in 1994 - ISBN 0 642 20256.7).

broad scale monitoring (manta tow or equivalent);

line intercept transect with identification at a minimum of 'lifeform' level (or similar methods to determine coral cover and status); and

visual fish censusing, with emphasis on fisher target species and indicator fish like butterfly (chaetodont)fish.

An additional method can be used to obtain more detail and check for new coral growth.
permanent quadrat to measure coral recruitment and growth.

MANTA TOW (OR EQUIVALENT)

Broad scale monitoring (Manta tow, or a timed swim) is needed:

- to develop a broad picture of the reef to;

- observe unusual phenomena (like blast damage, plagues); and

- ensure that more detailed monitoring sites are representative of the whole reef.

The Manta tow has been successful in many areas, and consists of 2 minute snorkel tows (minimum of 9) behind a boat at slow speed with stops to record percent cover of live and dead corals, soft coral, and regional specific parameters e.g. crown-of- thorns starfish, Diadema, giant clams, large patches of damage to corals. The whole reef boundary should be surveyed, if possible. These taws are used to select the transect monitoring sites to ensure that they are representative of the whole reef.

LINE INTERCEPT TRANSECT OR EQUIVALENT

This major monitoring method assesses live coral, preferably with an estimation of coral types, dead coral cover and sand, algae etc. The preferred method uses 5 line transects each 20 m long, with the parameters either recorded as 'lifeforms', or as species, if possible. Initially the number of lifeform categories (approximately 20) may be reduced during training to help people get started. All lifeforms and species must be capable of being compared statistically. Several lifeforms or species can be grouped into larger groups e.g. branching and digitate Acropora and branching non-Acropora can be combined into branching coral; but larger groups cannot be sub-divided back into more detailed groups after data have been collected.

Similar techniques, like belt and video transects, are comparable and can be inter-calibrated with the lifeform

transects with little difficulty to provide baseline data.

Transects should be placed where coral density is highest e.g. 3 or 6 m and then used for fish census counts. If possible another set of transects can be done at 10 m depth.

LIVE FISH CENSUS

Live fish visual censusing is also based on line transects, but 3 by 50 m transects, with fish assessed in a column 5 m wide and 5 m high above the line (less in waters with poor visibility). The initial focus is on counting all fish, especially those that are the major target of the fishers, and possibly including some indicator species like the Chaetodonts. As experienced is gained, more species level identifications can be attempted. The fish and lifeform transects can be conducted on the same transect lines, with fish surveys completed before benthos assessment.

PERMANENT QUADRAT

If time permits, monitoring teams are encouraged to establish permanent, marked quadrats (e.g. 1 m2) which are assessed regularly, either by photography or mapping to measure growth rates of corals and results of inter-specific interactions.

Quadrats are particularly used to follow new coral recruits to determine the ability of a reef to recover from stress. A very important site for monitoring will be reef areas that are almost bare of corals e.g. reefs that have been damaged (storms, blast impacts, ship wrecks, fresh water flows, pollution, sediment damage).

Several permanent quadrats, 1 m by 1 m square, should be marked permanently with steel stakes (preferably stainless steel) at around 3 to 5 m depth (or where coral growth is normally highest). These quadrats are set up near the start of the LIT transects.

Corals and other benthos in the quadrat can be photographed or marked on underwater slates. A portable quadrat divided into 25 cm by 25 cm squares with tight string will help map the quadrat.

If you want to examine if very small corals have settled in the area, terracotta tiles can be placed before corals breed and then collected to examine for juveniles under a microscope.

A SUGGESTED MONITORING PROGRAMME FOR A MEDIUM SIZED REEF

1. Obtain a map or drawing of the reef. Mark on it the major reef and adjacent land features, and the compass directions. If possible, mark GPS coordinates.

2. Manta tow the outside of the reef to obtain an overall picture - this will require a minimum of 9 by 2 minute tows recording coral cover, coral health, and unusual features like crown-of-thorns starfish, sea urchin numbers, giant clams, blast (dynamite) scars.

3. First transect - select a typical site near the major wave exposure part. This area should be like most of the areas of the reef - NOT the area with the highest or lowest coral cover.

It is best to monitor a site near where the major waves come, but usually not in them, as this can be too dangerous and difficult to visit regularly (AIMS selects the north east face of reefs, where waves come mostly from the south east).

Select a depth where normally most coral grows. On many reefs, this is between 3 and 6 m below low water mark. On reefs with large waves, this will be deeper, around 10 m.

Mark the start of the first transect with a steel stake. Mark the ends of all transects with stakes.

Put down 3 transect lines each 50 m long and wait 5 to 15 minutes and then count the fish along 3 by 50 m lengths.

Do the fish censuses first and then do coral cover.

4. Set up 5 by 20 m transects at 3 m using the fish transect lines. Each 20 m transect should be randomly placed along the fish transect lines.

5. If there are enough people, make another set of fish and lifeform transects a bit deeper e.g. 10 m.

6. Repeat the process at 2 more sites on the reef, if you have enough time and divers. This will give a good statistical sample - better than just one set of 150 m fish and 100 m benthos transects.

7. Repeat the fish transects, if possible, after 3 months to check for seasonal effects.

8. Repeat all the monitoring after 12 months, or a minimum of 2 years.

9. Record all data immediately into the computer and check for accuracy against the original data sheets. AIMS has prepared a receiving and analysis database (ARMDES) that is available from the AIMS Home Page or can be obtained on diskettes.
